

Fuels and Fire Behavior Advisory

Eastern North Carolina

March 31, 2022

Subject: Elevated dry conditions in the Coastal, Sandhill, and Eastern Piedmont FDRAs have created the potential for problematic Fire Behavior.

Discussion: Persistent high-pressure systems coupled with infrequent rain events over the past several weeks have brought exceedingly dry conditions to most of Eastern NC. Conditions are most severe in the Upper Coastal Plain and along the I-95 corridor. **Drought severity has significantly influenced dead fuel moisture, with current values mimicking those experienced during the historically dry spring of 2011.** Advisory area FDRAs continue to maintain ERCs near the 97th percentile. Turnbull Creek, Ft Bragg, and Finches Station RAWS are all near record maximum ERC for March. BI reached historic maximums in Ft Bragg RAWS during the last week of March

Warm late winter and early spring conditions have contributed to an earlier than normal leaf out, which has in turn increased the drawdown of surface moisture and amplified wildfire risk. New herbaceous growth has not proved effective in inhibiting fire spread. The full spectrum of dead and live fuels currently supports and promotes rapid fire ignition and spread. Fire behavior associated with any initial or extended attack effort should be considered potentially extreme. Drying at the surface and duff layers have allowed for the entire surface layer to become available for burning. This has affected the potential for hold over fires and re-burns, and the ability of suppression forces to control the edges of going fires.

Observations from recent fire activity has highlighted specific areas of concern.

- 10hr and 100hr fuels are readily available and consuming completely.
- Larger dead fuels are almost completely consuming but not entirely.
- Re-kindles are occurring on contained fires and prescribed burns.
- Mop-up activities are taking longer and requiring additional personnel.
- Dry and windy cold fronts with associated low RH and poor night RH recovery have been significant factors in fire growth.
- Bay fuels are not consuming as rapidly yet, unless wind driven. Peak bay fuel volatility is still a few weeks away.

Difference from normal conditions: Fire Danger indices are running at historic levels for March.

- ERC is setting historic maximums for the last 1-month period in Ft Bragg and Turnbull.
- 1000HR fuels forecast to approach record minimums going into April, **even with forecast rains.**
- KBDI is still running at normal for late March as temps have been too cool to elevate yet.
- This current drying will take significantly more rain to alleviate. Stream flow levels are below normal.
- **In 2019, it took 2" rain over a week to bring 1000HR back to seasonal normal.**
- As leaf out progresses over the next 2 weeks, surface conditions should improve slightly due to shading and decreased drawdown.

Concerns to Firefighters and the Public:

- Anticipate any ignition in all size classes of dead fuels to ignite easily and move rapidly.
- Trafficability for dozers and engines has been an issue. Below the dry surface, it is still wet.
- Due to current and forecasted fuel moisture values, extreme fire behavior will occur under lower wind speeds, higher humidity values and lower temperature thresholds than normal.
- As temperatures increase over the next few weeks, fires will burn with more intensity and fire behavior will become more extreme.
- Anticipate large acreages to be consumed in a short period of time.
- Traditional breaks and barriers in muck soils, wetlands, and roadways are not dependable to slow or stop fire spread.

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Potential Fire Behavior:

Given the current dry conditions and fuel moistures, expect general initiating fire behavior as listed in the table below. Use the forecast wind scenario to select the appropriate expected fire behavior. This assumes current forecast fuels moistures across the severity area, 0% slope, 65 degrees, 65' tall trees with 50% canopy closure. 20' wind speed is from forecast and NOT eye level wind.

Fuel Model		Rate of Spread ch/hr			Flame length ft			Spotting Distance miles			Probability of Ignition		
	20' wind speed	5	10	20	5	10	20	5	10	20	5	10	20
Timber and Grass		5	12	38	2	4	6	0.1	0.2	0.4	50%	50%	50%
Southern Rough		5	12	28	3	4	6	0.1	0.2	0.4	50%	50%	50%
Pocosin		3	7	15	4	5	8	0.1	0.2	0.4	50%	50%	50%

Mitigation Measures:

- Prepare for any increase in forecast winds as it will greatly increase fire behavior over what has been observed to date.
- Prepare for dry cold fronts and low RH events as these have proceeded the large and multiple fire days.
- Attack new starts aggressively to avoid having to use indirect tactics, which would increase containment issues.
- Direct attack has been intense and may require multiple tractors. Take advantage of reduced intensity during nights, evenings and mornings.
- **Indirect tactics and backfiring can be difficult to contain and should be applied cautiously.**
- Short duration precipitation events will bring little relief, given the baseline environmental conditions and extremely dry fuels. Maintain readiness after frontal passage.
- Actively investigate lightning activity as fuels are very receptive for ignition and there may be delays in spread.
- Brief any incoming resources on current situation.
- Take advantage of favorable low danger windows to also manage fatigue and rehabilitate resources.

Area of Concern: Fire Danger Rating Areas: Southcoast, Sandhills, Eastern Piedmont, North Coast

Issued By: John Cook, Fire Behavior Analyst, North Carolina Forest Service



GRIDDED DATA Percent of Normal Precipitation (%) 5 10 25 50 75 90 100 110 125 150 200 300 400 600
From Sunday, Feb 27 at 7 am to yesterday (Mar 29) at 8 am
Note: Gridded precipitation and drought data ending at midnight today will be available after noon ET